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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,583	12/18/2001	Maurilio Cometto	ANDIP002	9533

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BEYER WEAVER & THOMAS LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER	
JEAN GILLES, JUDE	
ART UNIT	**PAPER NUMBER**
2143	

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,583	COMETTO ET AL.	
	Examiner	Art Unit	
	Jude J. Jean-Gilles	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-69* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/10/2003*, 05/28/03, 04/21/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is responsive to communication filed on 12/18/2001.

Information Disclosure Statement

1. The references listed on the Information Disclosure Statements submitted on 06/10/2003, 05/28/2003, and 04/21/2003 have been considered by the examiner (see attached PTO-1449A).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1-69** are rejected under 35 U.S.C. 102(e) as being anticipated by Black et al (Black), Patent No. 6,614,796 B1.

Regarding **claim 1**, Black discloses a method for controlling congestion at a network switch (fig. 3), the method comprising:

receiving a frame having a source identifier field corresponding to a source node and a destination identifier field corresponding to a destination node, the frame having been transmitted to the network switch through a first intermediate switch between the

network switch and the source node (column 15, lines 34-67; column 21, lines 47-67; column 46, lines 5-38);

characterizing traffic flow at the network switch (column 35, lines 60-67; column 36; lines 1-59); and

sending a first instruction from the network switch to the first intermediate switch to control traffic from the source node to the destination node (column 46; lines 5-38).

Regarding **claim 2**, Black discloses the method of claim 1, wherein the first intermediate switch is an edge switch coupled to the source node (column 15, lines 34-67. Note the "hold back flow control" represents the message from the switch).

Regarding **claim 3**, Black discloses the method of claim 2, wherein the first instruction sent to the first intermediate switch comprises an edge quench frame (column 15, lines 34-67).

Regarding **claim 4**, Black discloses the method of claim 3, wherein the edge quench frame has a source identifier field corresponding to the destination node and a destination identifier field corresponding to the source node (column 43, lines 50-67; column 44, lines 1-23).

Regarding **claim 5**, Black discloses the method of claim 4, wherein the edge quench frame includes network switch congestion information (column 15, lines 34-67).

Regarding **claim 6**, Black discloses the method of claim 5, wherein the edge quench frame includes network switch queue level information (column 15, lines 34-67).

Regarding **claim 7**, Black discloses the method of claim 6, wherein the edge quench frame directs the first intermediate switch to control the allowed rate for

transmitting from the source node and the destination node by half (column 15, lines 34-67).

Regarding **claim 8**, Black discloses the method of claim 7, wherein the first intermediate switch and the network switch are connected using fibre channel (column 15, lines 34-67).

Regarding **claim 9**, Black discloses the method of claim 1, wherein the frame was transmitted through a second intermediate switch between the first intermediate switch and the network switch (column 15, lines 34-67).

Regarding **claim 10**, Black discloses the method of claim 9, further comprising: sending a second instruction from the network to the second intermediate switch to control traffic from the source node to the destination node (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 11**, Black discloses the method of claim 10, wherein the first instruction sent to the first intermediate switch comprises a path quench frame (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 12**, Black discloses the method of claim 11, wherein the second instruction sent to the second intermediate switch comprises the path quench frame(column 15, lines 34-67; column 29, lines 5-27).

Regarding **claim 13**, Black discloses the method of claim 12, wherein the path quench frame has a source identifier field corresponding to the destination node and a destination identifier field corresponding to the source node. (column 43, lines 50-67; column 44, lines 1-23).

Regarding **claim 14**, Black discloses the method of claim 13, wherein the path quench frame includes network switch congestion information (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 15**, Black discloses the method of claim 14, wherein the path quench frame includes network switch queue level information (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 16**, Black discloses the method of claim 15, wherein the path quench frame directs the first and second intermediate switches to reduce the allowed rate for transmitting from the source node and the destination node to 0 bps (column 18, lines 2-62).

Regarding **claim 17**, Black discloses the method of claim 1, wherein characterizing traffic flow comprises checking the network switch queue level (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 18**, Black discloses the method of claim 17, wherein characterizing traffic flow comprises determining whether to transmit path quench or edge quench frames (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 19**, Black discloses the method of claim 18, wherein path quench frames are transmitted when the queue level exceeds a high threshold (column 18, lines 12-62).

Regarding **claim 20**, Black discloses the method of claim 19, wherein edge quench frames are transmitted when the queue level is between a high threshold and a low threshold (column 18, lines 12-62).

Regarding **claim 21**, Black discloses the method of claim 20, wherein the edge quench and path quench frames include a buffer level indicator (column 19, lines 24-67; column 20, lines 1-30).

Regarding **claim 22**, Black discloses a method for controlling traffic flow between first and second end nodes through first and second intermediate nodes, the method comprising:

transmitting a first frame having a source identifier corresponding to the first end node and a destination identifier corresponding to the second end node, wherein the frame is transmitted at a first intermediate node to a second intermediate node between the first intermediate node and the second end node (column 15, lines 34-67; column 21, lines 47-67; column 46, lines 5-38);

receiving a second frame from the second intermediate node, the second frame having a source identifier corresponding to the second end node and a destination identifier corresponding to the first end node, wherein the second frame includes instructions to adjust the current allowed rate from the first end node to the second end node (column 13, lines 43-67; column 14, lines 1-43; column 18, lines 12-62); and

adjusting the current allowed rate from the first end node to the second end node upon receiving the second frame (column 13, lines 43-67; column 14, lines 1-43; column 18, lines 12-62).

Regarding **claim 23**, Black discloses the method of claim 22, wherein the current allowed rate can not exceed the maximum allowed rate.

Regarding **claim 24**, Black discloses the method of claim 22, wherein adjusting the current allowed rate comprises: determining that the second frame is an edge quench frame (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 25**, Black discloses the method of claim 24, wherein the current allowed rate is adjusted after it is determined that the first intermediate node is an edge switch coupled to the first end node (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 26**, Black discloses the method of claim 24, wherein the current allowed rate is adjusted after it is determined that the first intermediate node is coupled to a neighboring node that does not support congestion control (column 15, lines 10-67).

Regarding **claim 27**, Black discloses the method of claim 25, wherein the first end node is a host (fig. 5, item 144; column 15, lines 10-67).

Regarding **claim 28**, Black discloses the method of claim 27, wherein the second end node is storage (column 15, lines 10-67).

Regarding **claim 29**, Black discloses the method of claim 25, wherein the first end node is storage (column 15, lines 10-67).

Regarding **claim 30**, Black discloses the method of claim 29, wherein the second end node is a host (column 15, lines 10-67).

Regarding **claim 31**, Black discloses the method of claim 25, wherein the current allowed rate is initially the maximum allowed rate (column 18, lines 12-62).

Regarding **claim 32**, Black discloses the method of claim 31, wherein the current allowed rate is divided by two upon receiving an edge quench frame (column 18, lines 12-62).

Regarding **claim 33**, Black discloses the method of claim 32, wherein the current allowed rate increases at a recovery rate (column 18, lines 12-62).

Regarding **claim 34**, Black discloses the method of claim 33, wherein the recovery rate is dynamically set (column 18, lines 12-62).

Regarding **claim 35**, Black discloses the method of claim 33, wherein the recovery rate is set based on information contained in the received edge quench frame (column 33, lines 29-64).

Regarding **claim 36**, Black discloses the method of claim 35, wherein the recovery rate is set based on an input queue associated with the second intermediate node (column 18, lines 12-62).

Regarding **claim 37**, Black discloses the method of claim 22, wherein adjusting the current allowed rate comprises: determining that the second frame is a path quench frame (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 38**, Black discloses the method of claim 37, wherein the current allowed rate is initially the maximum allowed rate (column 18, lines 12-62).

Regarding **claim 39**, Black discloses the method of claim 38, wherein the current allowed rate is reduced to 0 bps upon receiving an path quench frame (column 18, lines 2-62).

Regarding **claim 40**, Black discloses the method of claim 39, wherein the current allowed rate increases at a recovery rate (column 18, lines 12-62).

Regarding **claim 41**, Black discloses the method of claim 40, wherein the recovery rate is dynamically set (column 18, lines 12-62).

Regarding **claim 42**, Black discloses the method of claim 40, wherein the recovery rate is set based on information contained in the received path quench frame (column 18, lines 12-62).

Regarding **claim 43**, Black discloses the method of claim 42, wherein the recovery rate is set based on an input queue associated with the second intermediate node (column 18, lines 12-62).

Regarding **claim 44**, Black discloses a switch for controlling the traffic flow between a source node and a destination node, the switch comprising:

a first port for coupling to a first external node (fig. 4, item 106);

a second port for coupling to a second external node (fig. 4, item 102);

a first queue associated with the first port for receiving data from the first external node, the first queue including a first portion for holding data for transmission through the first port and a second portion for holding data for transmission through the second port (column 18, lines 12-62); and

a filter coupled to the first queue, the filter configured to receive data from the first queue and determine whether transmission of the data should be delayed based on information received from the second external node (column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 45**, Black discloses the switch of claim 44, further comprising a filter queues, wherein the filter queues are configured to hold data set for delayed transmission (column 39, lines 28-51).

Regarding **claim 46**, Black discloses the switch of claim 45, wherein each filter queue is associated with a flow (column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 47**, Black discloses the switch of claim 46, wherein the flow is traffic from a source node to a destination node node (column 15, lines 34-67; column 21, lines 47-67; column 46, lines 5-38).

Regarding **claim 48**, Black discloses the switch of claim 47, wherein the first queue is a virtual output queue (column 12, lines 17-61).

Regarding **claim 49**, Black discloses the switch of claim 47, wherein each filter queue is associated with a priority (column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 50**, Black discloses the switch of claim 49, wherein each filter queue is associated with an input port and an output port (column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 51**, Black discloses the switch of claim 44, further comprising a rate limiter coupled to a filter queue (column 18, lines 12-62)..

Regarding **claim 52**, Black discloses the switch of claim 51, wherein the amount of delay is determined by the rate limiter (column 18, lines 12-62)..

Regarding **claim 53**, Black discloses the switch of claim 52, wherein the rate limiter uses token buckets (column 18, lines 12-62)..

Regarding **claim 54**, Black discloses the switch of claim 53, wherein the amount of delay is determined based on information received from the second external node (column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 55**, Black discloses the switch of claim 54, wherein the number of tokens allocated to a filter queue associated with a flow is halved upon receipt of an edge quench frame from the second external node identifying the flow (column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 56**, Black discloses the switch of claim 55, wherein the number of tokens allocated to the filter queue associated with the flow increases at a recovery rate (column 18, lines 12-62).

Regarding **claim 57**, Black discloses the switch of claim 56, wherein the recovery rate is dynamically determined (column 18, lines 12-62).

Regarding **claim 58**, Black discloses the switch of claim 56, wherein the recovery rate is set based on second external node queue level information (column 18, lines 12-62).

Regarding **claim 59**, Black discloses the switch of claim 54, wherein the number of tokens allocated to a filter queue associated with a particular flow is set to zero upon

receipt of a path quench frame from the second external node identifying the particular flow (column 43, lines 50-67; column 44, lines 1-23).

Regarding **claim 60**, Black discloses the switch of claim 59, wherein the number of tokens allocated to the filter queue associated with the flow increases at a recovery rate (column 18, lines 12-62).

Regarding **claim 61**, Black discloses the switch of claim 60, wherein the recovery rate is dynamically determined (column 18, lines 12-62).

Regarding **claim 62**, Black discloses the switch of claim 60, wherein the recovery rate is set based on second external node queue level information (column 18, lines 12-62).

Regarding **claim 63**, Black discloses an apparatus for controlling congestion, the method comprising:

means for receiving a frame having a source identifier field corresponding to a source node and a destination identifier field corresponding to a destination node, the frame having been transmitted to the network switch through a first intermediate switch between the network switch and the source node (column 15, lines 34-67; column 21, lines 47-67; column 46, lines 5-38);

means for characterizing traffic flow at the network switch (column 35, lines 60-67; column 36; lines 1-59); and

means for sending a first instruction from the network switch to the first intermediate switch to control traffic from the source node to the destination node (column 46; lines 5-38).

Regarding **claim 64**, Black discloses the apparatus of claim 63, wherein the first intermediate switch is an edge switch coupled to the source node (column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 65**, Black discloses the apparatus of claim 64, wherein the first instruction sent to the first intermediate switch comprises an edge quench frame (column 15, lines 34-67).

Regarding **claim 66**, Black discloses the apparatus of claim 65, wherein the edge quench frame has a source identifier field corresponding to the destination node and a destination identifier field corresponding to the source node (column 43, lines 50-67; column 44, lines 1-23).

Regarding **claim 67**, Black discloses a computer readable medium for controlling congestion, the computer readable medium comprising:

computer code for receiving a frame having a source identifier field corresponding to a source node and a destination identifier field corresponding to a destination node, the frame having been transmitted to the network switch through a first intermediate switch between the network switch and the source node (column 15, lines 34-67; column 21, lines 47-67; column 46, lines 5-38);

computer code for characterizing traffic flow at the network switch (column 35, lines 60-67; column 36; lines 1-59); and

computer code for sending a first instruction from the network switch to the first intermediate switch to control traffic from the source node to the destination node (column 46; lines 5-38).

Regarding **claim 68**, Black discloses the computer readable medium of claim 67, wherein the first intermediate switch is an edge switch coupled to the source node (column 15, lines 34-67).

Regarding **claim 69**, Black discloses the computer readable medium of claim 68, wherein the first instruction sent to the first intermediate switch comprises an edge quench frame (column 15, lines 34-67).

Conclusion

4. Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914. The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley, can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3719.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Jude Jean-Gilles

Patent Examiner

Art Unit 2143

DAVID WILEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

JJG

September 5, 2005